

CURRICULUM VITAE

PATRICK P. DELUCA, Ph.D.

PRESENT POSITION

Professor, Faculty of Pharmaceutical Sciences, University of Kentucky
College of Pharmacy, Rose Street, Lexington, KY 40536-0082

EDUCATION

Temple University, Philadelphia, PA

B.S. in Pharmacy

M.S. in Pharmacy

Thesis: "The Interaction of Quaternary Ammonium Compounds with
Nonionic Macromolecules"

Ph.D., Pharmaceutical Sciences

Dissertation: "Photobinding and Photoreactivity of Riboflavin in the
Presence of Macromolecules"

PROFESSIONAL EXPERIENCE

University of Kentucky College of Pharmacy

1998 - 2000	Interim Chair, Faculty of Pharmaceutical Sciences
1975 - Present	Professor
1987 - 1988	Acting Director, Center for Pharmaceutical Science and Technology
1978 - 1987	Associate Dean
1972 - 1984	Division Director Pharm. Tech. Div. 1972-75, Drug Information & Technology 76-81, Drug Information, Evaluation & Technology 81-83, Clinical Practice 83-84.
1971 - 1978	Assistant Dean
1970 - 1975	Associate Professor

Industry

- 1969 – 1970 Cormedics Corporation, Somerville, N.J.
Plant Manager 1969, Director Development and Control 1970. This was a joint venture between CIBA Pharmaceutical Co. and Coming Glass Co which developed and manufactured a unit dose injectable system.
- 1963 – 1969 CIBA Pharmaceutical Co., Summit, N.J.
Senior Research Pharmacist - January 1963 to May 1966.
Manager, Special Projects - May 1966 to Nov. 1966.
Plant Manager, Somerville, N.J. Operations, Nov. 1966 to Feb., 1969. (Operations later became Cormedics Corp.)
- 1957 – 1959 Analytical Chemist, Smith Kline & French Labs, Philadelphia, PA.

Other

- 1961 - 1962 Temple University, College of Pharmacy, Philadelphia, PA
Laboratory Instructor (1961), Research Associate (1962).
- 1959 - 1961 Relief Pharmacist, Street Road Pharmacy, Cornwell Heights, PA.
- 1954 - 1957 Pharmacy Technician, Eppleys Pharmacy, Philadelphia, PA
- 1952 - 1954 Pharmacy Technician, Jenkins Pharmacy, Scranton, PA.

TEACHING AND RESEARCH INTERESTS

Pharmaceutical Technology, Sterile Products, Intravenous Administration Systems, Controlled Drug Delivery, Target Drug Delivery, Dosage Form Development and Formulation of Proteins. (course involvement listed in ADDENDUM)

- ASSOCIATIONS**
- American Association of Pharmaceutical Scientists
 - American Pharmaceutical Association
 - Academy of Pharmaceutical Sciences
 - American Association of Colleges of Pharmacy
 - Kentucky Pharmacists Association
 - Parenteral Drug Association
 - American Society of Hospital Pharmacy
 - New York Academy of Sciences
 - Scientific Research Society of America - Sigma Xi
 - Rho Chi Pharmaceutical Honor Society
 - American Society for Parenteral & Enteral Nutrition
 - Kentucky Academy of Sciences

AWARDS RESULTING FROM RESEARCH AND SCHOLASTIC ACHIEVEMENT:

Leo G. Penn Memorial - Temple University 1957
Walter G. Karr Fellowship - Smith, Kline and French Laboratories 1959-1962.
Lunsford-Richardson Pharmacy Award - "The Inactivation of Cationic Pharmaceuticals by Nonionic Surface Active Agents" 1960.
Lunsford-Richardson Pharmacy Award - "The Effect of Binding on the Photochemical Properties of Hydrocortisone and Methylprednisolone" 1962.
Best paper during the year 1965 toward the scientific advancement of Industrial Pharmacy. Recognized by the North Jersey Pharmaceutical Research Discussion Group.
Co-author and faculty advisor of award winning papers submitted by graduate students to the Parenteral Drug Association for the years 1972, 1973, 1976 and 1977.
Research Achievement Award for 1975 - Parenteral Drug Association Recognition for outstanding contribution to the literature in advancing the area of parenteral technology. (First Recipient)
ASHP Research Award (principal author) for the most significant contribution to the literature of research in the professional practice of hospital pharmacy during 1975 for the article "Filtration and Infusion Phlebitis: A Double-blind Prospective Clinical Study."
Stimulation of Research Awards for 1981 and 1982 from Parenteral Drug Association - "Interaction of Microspheres with Blood Constituents and Effect on Immune Response."
Outstanding Educator in the U.S. - 1973-74.
Listed in American Men and Women of Science, Who's Who in America and Who's Who in the South and Southwest.
Research Award with graduate student from Parenteral Drug Association Foundation for the Parenteral Sciences for 1986 to study the "Effects of Freezing and Drying on Immunoglobulin Conformation".
Research Achievement Award in Pharmaceutical Technology from the American Association of Pharmaceutical Scientists (1988). (First Recipient)
Certificate of Honor Award as a Distinguished Alumni of Temple University (1989).
Named a Senior Fellow with the Institute for Advanced Biotechnology (1991).
William B. Sturgill Award for outstanding contribution to graduate education and research: University of Kentucky (1995).
Outstanding Manuscript Award in Pharmaceutical Development and Technology (1998) for publications during 1996 and 1997.
Named a Fellow of the American Association of Indian Pharmaceutical Scientists (1998).
Mentor of graduate student (Harneet Chadha) receiving AAPS Graduate Student Award for Outstanding Manuscript (1998).
Mentor of graduate student (Jay Schrier) receiving AAPS Graduate Student Award for Outstanding Manuscript (1999).
AAPS Outstanding Educator Award in Pharmaceutical Sciences (2000). (First Recipient)
Mentor of two graduate students (Janusz Kostanski and Sisay Gebrekidan) receiving AAPS Graduate Student Awards for Outstanding Manuscripts (2000).
Mentor of graduate student (Bhas Dani) receiving AAPS Graduate Student Award for Outstanding Manuscript (2001).
Sullivan Medallion Award: University of Kentucky (2001).
Mentor of graduate student (Ge Jiang) receiving AAPS Graduate Student Award for Outstanding Manuscript (2002)
Kentucky Pharmacist of the Year (2002).
Outstanding Manuscript Award in Pharmaceutical Technologies for Publications in AAPS Journals (2002) for publications in 2000 and 2001.

PUBLICATIONS

Chapters in Textbooks:

- 1) "Kinetic Principles and Stability Testing", The Theory and Practice of Industrial Pharmacy, Lea & Febiger, Philadelphia, PA (1970) pp 669-710. Second revision (1976), Third Revision, pp 760-803, (1986).
- 2) "Sterile Products", American Pharmacy Textbook, 7th edition, Lippincott, Philadelphia, PA, pp 451-491 (1974).
- 3) "Parenteral Drug Delivery Systems" in Pharmaceutics and Pharmacy Practice, 1st ed., p. 238, Philadelphia, J.P. Lippincott (1982).
- 4) "Formulation of Small Volume Parenterals," in Pharmaceutical Dosage Forms: Parenteral Medications, Vol. 1, pp. 139-201, Marcel Dekker Inc., N.Y. (1984). Second Edition, Vol. 1, pp. 173-248, Marcel Dekker Inc., N.Y. (1992).
- 5) "Particulate Matter Monitoring" in Pharmaceutical Dosage Forms: Parenteral Medications, Vol. II, Marcel Dekker, Inc., NY, pp. 217-308, (1986).
- 6) "Particulate Matter" in Pharmaceutical Dosage Forms: Parenteral Medications, Second Edition, Vol. 3, Marcel Dekker, Inc., N.Y., pp. 117-230 (1993).

Articles in Professional Journals:

- 1) A Description of Some Self Evaluation Programs and Case Histories, DeLuca, P., Presented at the Conference on Drug Efficacy Evaluation and Self Evaluation by Pharmaceutical Industry, October 1971. Published in the "Wisconsin Pharmacist", (1972) and FDA Handbook, "Introduction to Total Drug Quality," DHEW Publication No. (FDA) 74-3006, Nov. 1973.
- 2) Real Life Settings Make Training in Pharmacy Practical and Useful, DeLuca, P., Hopkins, H. and Smith, H., Pharmacy Times, 44-48, March (1972).
- 3) Issue Identification Approach to Pharmacy Education Planning I. Overview of Some Major Issues, Barnett, R.L., Butler, H.L., DeLuca, P.P., and Straus, R., American Journal of Pharmaceutical Education, 40:71-74, Feb. (1976).
- 4) Tomorrow's Pharmacists Today through Role Modification, Barnett, R.L., Butler, I.L., DeLuca, P.P., and Straus, R., Pharmacy Times 69968-74, Oct. (1976).
- 5) Minimizing Contamination During I.V. Therapy by In-line Filtration, DeLuca, P.P., Rapp, R.P., and Bivins, B., Western States I.V. Therapy Journal, 5-14, Sept.-Oct. (1976).
- 6) Drug Information in Pharmacy Practice, Amerson, A.B., Barnett, R.L., Butler, I.L., and DeLuca, P.P., J. Clin. Pharm., 2:219-225(1978).

- 7) Pharmaceutical Technology Clerkship, A Professional Elective Course at the University of Kentucky, Im, S., and DeLuca, P.P., Am. J. Pharm. Education, 42:52-55 (1977).
- 8) Pharm.D. in Industry, Proceedings at a special American Association of Colleges of Pharmacy Convention, Seattle, Washington, August 7, 1977. Published by Hoffman-LaRoche, Inc., 1978.
- 9) Filtration and Infusion Therapy: A Review and Forecast for the 80's. Rapp, R.P., Bivins, B. and DeLuca, P.P., Am. J. I.V. Ther. Clin. Nutr., 7:36-46 (1980).
- 10) Bridging the Gap Between the Basic Sciences and Clinical Practice: Teaching, Research and Services. The Importance of Defining Institutional Goals. Swintosky, I.V., DeLuca, P.P., Parker, P.F., and Gueryant I., Am. J. Phar. Ed., 45:109-117 (1981).
- 11) Microcontamination Control: An Approach to Training. DeLuca, P.P., J. Paren. Sci. and Tech., 37(6):218, (1983).
- 12) Controlled Release: A Clinical Guide. Pullins, Leanne and DeLuca, P.P., Merck Minutes, 3(1):1, 1986.
- 13) Let's Harmonize: Guest Editorial, DeLuca, P.P., J. Paren. Sci. and Tech., 44 (4), 183, 1990.
- 14) Educational Issues Related to the Science and Technology of Sterile Products: Academic and Industrial Perspectives. Allen Jr., L.V., Bloss, C.S., Brazeau, G.A., DeLuca, P.P., Raymond, G.G., Robinson, D.H., Stiles, L. and Thiboutot, R.P., Am. J. Pharm. Ed., 57:257-265 (1993).
- 15) Educational Issues Related to the Science and Technology of Sterile Products: Strategies for Education. Allen Jr., L.V., Bloss, C.S., Brazeau, G.A., DeLuca, P.P., Raymond, G.G., Robinson, D.H., Stiles, L. and Thiboutot, R.P., Am. J. Pharm. Ed., 57:265-268 (1993).
- 16) Regulatory and Ethical Issues of Gene-Based Drugs, DeLuca, P.P., 10th International Pharm Tech Symposium, in press, Minutes, Editions De Sante, Paris, (2001).

Articles in Scientific Journals:

- 1) A Note on an Infrared Assay of Chloroform in Pharmaceutical Products, Souder, J.C., and DeLuca, P.P., J. Am. Pharm. Assoc., Sci Ed 49, 225(1960).
- 2) Interaction of Preservatives with Macromolecules I.V. Binding of Quaternary Ammonium Compounds by Nonionic Agents, DeLuca, P.P. and Kostenbauder, H.B., J. Am. Pharm. Assoc., Sci Ed 49, 430(1960).
- 3) Reversible Photobinding of Riboflavin to Macromolecules in Aqueous Solution, DeLuca, P.P., and Kostenbauder, H.B., J. Phys. Chem., 67, 1395(1963).
- 4) Enhanced Photoreactivity of Riboflavin in Aqueous Solution in the Presence of Macromolecules, DeLuca, P.P. and Kostenbauder, H.B., Nature, 199, 999 (1963).

- 5) Binding of Organic Electrolytes by a Nonionic Surface Agent, Hurwitz, A., DeLuca, P.P. and Kostenbauder, H.B., J. Pharm. Sci., 52, (1963).
- 6) Lyophilization of Pharmaceutical I. Effect of Certain Physical-chemical Properties, DeLuca, P.P. and Lachman, L., J. Pharm. Sci., 54, 617 (1965).
- 7) Photobinding and Photoreactivity of Riboflavin in the Presence of Macromolecules, Kostenbauder, H.B., DeLuca, P.P. and Kowarski, C.R., J. Pharm. Sci., 54 1244 (1965).
- 8) Lyophilization of Pharmaceuticals II. High-Sensitivity Resistance Bridge for Low-Conductivity Measurements at Eutectic Temperatures, Lachman, L., DeLuca, P.P., and Withnell, R., J. Pharm. Sci., 54 1342(1965).
- 9) Lyophilization of Pharmaceuticals III. Programming of Mathematical Expression of Estimating Eutectic Temperatures from Melting Point and Solubility Parameters, DeLuca, P.P., Lachman, L., and Yost, W., J. Pharm. Sci., 54, 1348 (1965).
- 10) Lyophilization of Pharmaceuticals IV. Determination of Eutectic Temperatures of Inorganic Salts, DeLuca, P.P., and Lachman, L., J. Pharm. Sci., 54 1411 (1965).
- 11) Lyophilization of Pharmaceuticals V. Influence of Metal Trays on Heat Transfer During Lyophilization, DeLuca, P.P. and Lachman, L. Bull. PDA, 20, 65 (1966).
- 12) Modified Computer Programs for Determining Eutectic Temperatures, DeLuca, P.P., Lachman, L., Yost, W., Clements, I.A., and Rogers, A.R., J. Pharm., Sci., 55, 450 (1966).
- 13) Manufacturing Aspects of Prefilled Disposable Syringes, DeLuca, P.P., Bull. PDA, 23, 8 (1969).
- 14) Nylon as a Dialysis Membrane, Kostenbauder, H.B., Boxenbaum, H.G., and DeLuca, P.P., J. Pharm. Sci., 58, 753 (1969).
- 15) Instrumented Pilot Plant Lyophilizer: Its Versatility in Developing and Programming Production Cycles, DeLuca, P.P., J. Pharm. Sci., 60:744-81 (1971).
- 16) Problems Arising from the Transfer of Sodium Bicarbonate Injection from Ampuls to Plastic Syringes, DeLuca, P.P. and Kowalsky, R.I., Amer. J. Hosp. Pharm., 29 217 March (1972).
- 17) In-line Final Filtration - A Method of Minimizing Contamination in Intravenous Therapy, Ryan, P.B., Rapp, R.P., DeLuca, P.P., Griffen, W.O., Clark, I.D., and Cloys, D., Parenteral Drug Association Research Award winning paper for 1972, Bull PDA, 27, 1(1973).
- 18) Physical-Chemical Properties of Substituted Amides in Aqueous Solutions and Evaluation of Their Potential Use as Solubilizing Agents, DeLuca, P.P., Lachman, L. and Schroeder, H.G., J. Pharm. Sci., 62:1320-27 (1973).

- 19) A Study on the In-vitro Precipitation of Poorly Soluble Drugs From Nonaqueous Vehicles in Human Plasma, Schroeder, H.G., and DeLuca, P.P., Parenteral Drug Association Research Award winning paper for 1973, Bull. PDA, 28, 1 (1974).
- 20) Consequences of Microbial Contamination During Extended Intravenous Therapy Using In-line Filters, Rusmin, S., Althausen, M.B., and DeLuca, P.P., Amer. J. Hosp. Pharm., 32:373-77 April (1975).
- 21) Effect of Antibiotics and Osmotic Change on the Release of Endotoxin by Bacteria Retained on Intravenous In-line Filters, Rusmin, S. and DeLuca, P.P., Amer. J. Hosp. Pharm., 32:378-80 April (1975).
- 22) In-line Filtration of I.V. Fluids and Drugs, Rapp, R.P., Bivins, B., and DeLuca, P.P., Amer. J. of IV. Ther., 2:18-23 April-May (1975).
- 23) Filtration and Infusion Phlebitis: A Double-blinded Prospective Clinical Study, DeLuca, P.P., Rapp, R.P., Bivins B., McKean, H.E., Griffen W.O., Amer. J. Hosp. Pharm., 32:1001-1007 Oct. (1975).
- 24) Viscosities and Partial Molal Volumes of Some Tetramethylcarboxamides at 25°C, DeLuca, P.P. and Rebagay, T.V., J. Phys. Chem., 79:2493-96 November (1975).
- 25) Membrane Filters: Additional Safety for Intraarterial Infusions, Meeker, W.R., Rapp, R.P., DeLuca, P.P., and Bivins, B., Archives of Surgery, 111:201 Feb. (1976).
- 26) Evaluation of a Prototype Air-venting In-line Intravenous Filter Set, Rapp, R.P., Bivins, B., Schroeder, H.G., and DeLuca, P.P., Amer. J. Hosp. Pharm., 32:1253-59 December (1975).
- 27) The Dielectric Constant and Dipole Moment of N,N,N'N' Tetramethylpimelamide at 25°C., DeLuca, P.P., Rebagay, T.V., and Casteel, I., J. of Chem. & Engr. Data, 21:262-64 July (1976).
- 28) Effect of In-line Intravenous Filtration on the Potency of Potassium Penicillin G, Rusmin, S. and DeLuca, P.P., Bulletin PDA, 30:64-71 March-April (1976).
- 29) Evaluation of a 5 Micron Stainless Steel Filter as an Intravenous In-line Filter or Pre-filter, Rapp, R.P., Schroeder, H.G., and DeLuca, P.P., Amer. J. Hosp. Pharm., 33:352-356, April (1976).
- 30) Correlation of Dielectric Constant and Solubilizing Properties of Tetramethyldicarboxamides, Rebagay, T., and DeLuca, P.P., J. Pharm. Sci., 65:11, 1645-48 November (1976).
- 31) Particulate Matter Assessment of a Clinical Investigation on Filtration and Infusion Phlebitis, Schroeder, H.G., and DeLuca, P.P., Amer. J. Hosp. Pharm., 33:543-46 June (1976).

- 32) Residues in Antibiotic Preparations I. Scanning Electron Microscopic Studies of Surface Topography, Rebagay, T., Rapp, R.P., Bivins, B., and DeLuca, P.P., Amer. J. Hosp. Pharm., 33:433-43 May (1976).
- 33) Residues in Antibiotic Preparations II. Effect of pH on the Nature and Level of Particulate Matter in Sodium Cephalothin Intravenous Solution, Rebagay, T., DeLuca, P.P., Amer. J. Hosp. Pharm., 33:443-48 May (1976).
- 34) Compliance with USP Osmolarity Labeling Requirements, Murty, B.S.R., Kapoor, I.N., and DeLuca, P.P., Amer. J. Hosp. Pharm., 33:546-51 June (1976).
- 35) Microbial Assessment of a Clinical Investigation on Filtration and Infusion Phelebitis, Rusmin, S., DeLuca, P.P., Rapp, R., and Bivins, B., 1976 Parenteral Drug Association Research Award, Bull. PDA, 31(L) 1-8 Jan.-Feb. (1977).
- 36) Particulate Matter Monitoring I. Evaluation of Some Membrane Filters and Microscopic Techniques, Rebagay, R.V., Schroeder, H.G., Im, S., DeLuca, P.P., Bull. PDA, 31(2):57-69 March-April (1977).
- 37) Particulate Matter Monitoring II. Correlation of Microscopic and Automatic Counting Methods, Rebagay, T.V., Schroeder, H.G., and DeLuca, P.P., Bull. PDA, 31(3): 150-55 May-June (1977).
- 38) Inflammatory Potential of Foreign Particulates in Parenteral Drugs, Dorris, G. C., Bivins, B.A., Rapp, R.P., Weiss, D.L., DeLuca, P.P., and Ravin, M.B., J. Anal. & Anal., 56(3):422-28 May-June (1977).
- 39) Freeze Drying of Pharmaceuticals, DeLuca, P.P., J. Vac. Sci. & Tech., 14:620-29 Jan.-Feb. (1977).
- 40) Effect of In-line Filtration on the Potency of Drugs, Administered Intravenously, Rusmin, S., Welton, S., DeLuca, P. and DeLuca, P.P., Amer. J. Hosp. Pharm., 34:1071-74 October (1977).
- 41) Research and Development of Pharmaceutical Dosage Forms, International Symposium on Freeze-drying of Biological Products, Washington, DC, 1976 Develop. Biol. Standard, Vol. 36, pp 41-50 (1977).
- 42) Improved Microscopic Methods and Correlation with Automatic Methods, Part 4 of a panel presentation on Particulate Contamination Monitoring, DeLuca, P.P., Bull. PDA, 31(4), 173-78 (1977).
- 43) Sustained-Release From Inert Wax Matrixes I: Drug-Wax Combinations, Schroeder, H.G., Dakkuri, A., and DeLuca, P.P., J. Pharm. Sci., 67(3), 350-53, March (1978).
- 44) Sustained Release from Inert Wax Matrixes II: Effect of Surfactants on Tripeleminamine Hydrochloride Release, Dakkuri, A., Schroeder, H.G., and DeLuca, P.P., J. Pharm. Sci., 67(3), 354-57 March (1978).

- 45) Sustained Release from Inert Wax Matrices III: Effect of Povidone on Tripeleennamine Hydrochloride Release, Dakkuri, A., Butler, L.D., and DeLuca, P.P., J. Pharm. Sci. 67:(3), 357-360 (1978).
- 46) Distribution of Radiolabeled Subvisible Microspheres after Intravenous Administration to Beagle Dogs, Schroeder, H.G., Simmons, G.H., and DeLuca, P.P., J. Pharm. Sci., 67: (4), 504-07, April (1978).
- 47) Physiological Effects of Subvisible Microspheres Administered Intravenously to Beagle Dogs, Schroeder, H.G., Bivins, B.A., Sherman, G.P., and DeLuca, P.P. J. Pharm. Sci., 67: (4), 508-13, April (1978).
- 48) A Note on the Acute Toxicity of Substituted Amide Solvents, Sherman, G.P., Gatlin, L., and DeLuca, P.P. Drug Development and Industrial Pharmacy, 4: (5), 485-89 (1978).
- 49) The Detection of Ampul Leakers Using Short-lived Radioisotope, Butler, L.D., Coupal, I.I., and DeLuca, P.P., 1977 Parenteral Drug Association Research Award, Bull, PDA, 32(1), 2-9, January-February (1978).
- 50) Final In-line Filtration: A Means of Decreasing the Incidence of Infusion Phlebitis, Bivins, B.A., Rapp, R.P., DeLuca, P.P., McKean, H., and Griffen, W.O., Surgery, 85(4), 388-94, April (1979).
- 51) Colorimetric Determination of Penicillins and Related Compounds in I.V. Solutions by Nickel (II) - Catalyzed Hydroxamic Acid Formulation Munson, I., Papadimitriou, D., and DeLuca, P.P., J. Pharm. Sci., 68(10), 1333-35, Oct (1979).
- 52) Determining Osmolarities: A Practical Approach for Multicomponent Intravenous and Parenteral Nutrient Solutions, Gatlin, L., Kulkarni, P., Hussain, A., and DeLuca, P.P., Amer. J. Hosp. Pharm., 36, 1357-61, October (1979).
- 53) Conditions Permitting Air Flow Through an Air-venting In-line Filter, Rusmin, S., Rapp, R.P., Bivins, B.A., and DeLuca, P.P., Amer. J. Hosp. Pharm., 36, 749-53, June (1979).
- 54) Sepsis in Rabbits Following Administration of Contaminated Infusions Through Filters of Venous Pore Size, Rapp, R.P., Bivins, B.A., and DeLuca, P.P., Amer. J. Hosp. Pharm., 36, 1711 December (1979).
- 55) Theoretical Aspects of Particulate Matter Monitoring by Microscopic and Instrumental Methods, Schroeder, H.G., and DeLuca, P.P., J. PDA, 34:(3), 183-91, May-June (1980).
- 56) Improving Drug Distribution in Solid Oral Dosage Forms Through Application of the Freeze Drying Process, DeLuca, P.P., Machado, H., and Schroeder, H.G., APGI Proceedings 2nd International Conference on Pharmaceutical Technology Vol. 1, 45 June 1980 France.

- 57) The Fate and Effects of ^{141}Ce Labeled Microspheres Following I.V. or I.A. Administration in Beagle Dogs, DeLuca, P.P., et.al., APGI Proceedings 2nd International Conference on Pharmaceutical Technology Vol. II, 27 June 1980 France.
- 58) Crystallization and Crystalline Kinetics of Frozen Antibiotic Solutions, Gatlin, L and DeLuca, P.P., APGI Proceedings 2nd International Conference on Pharmaceutical Technology Vol II, 140 June 1980 France.
- 59) The In-line Filter: A Means of Reducing the Complications of Intravenous Therapy, DeLuca, P.P., Rapp, R.P., and Bivins, B.A., APGI Proceedings, 2nd International Conference on Pharmaceutical Technology Vol IV, 181, June 1980 France.
- 60) Theoretical Aspects of Sterile Filtration and Integrity Testing, Schroeder, H.G. and DeLuca, P.P., APGI Proceedings 2nd International Conference on Pharmaceutical Technology Vol IV, 191 June 1980 France.
- 61) The Identification of Particulates in Parenteral Products, DeLuca, P.P., Im, S., and Boddapati, S., APGI Proceedings 2nd International Conference on Pharmaceutical Technology Vol IV, 199 June 1980 France.
- 62) Clearance of Ce- 141 Labeled Microspheres from the Blood and Distribution in Specific Organs Following Intravenous and Intraarterial Administration in Beagle Dogs, Kanke, M., Simmons, G.H., Weiss, D.L., Bivins, B.A., and DeLuca, P.P., J. Pharm. Sci., 69(7), 755 July (1980).
- 63) Identification of Subvisible Barium Sulfate Crystals in Parenteral Solutions, Bodappati, S., Butler, L.D., Im, S., and DeLuca, P.P., J. Pharm. Sci., 69(5), 608-10, May (1980).
- 64) Effect of In-line Filtration on the Potency of Low Dose Drugs, Butler, L.D., Munson, I.M., and DeLuca, P.P., Am. J. Hosp. Pharm., 37, 935 July (1980).
- 65) Guidelines for the Identification of Particles in Parenterals, DeLuca, P.P., Boddapati, S., and Im, S., FDA Bylines, 10, 111-165 July (1980).
- 66) A Study of Phase Transitions in Frozen Antibiotic Solutions by Differential Scanning Calorimetry, Gatlin, L., and DeLuca, P.P., J. Paren. Drug Assoc., 34(5), 398-408, September-October (1980).
- 67) Theoretical Aspects of Sterile Filtration and Integrity Testing, Schroeder, H.G., and DeLuca, P.P., Pharmaceutical Technology, 4(11), 80 (1980).
- 68) Acute Hemodynamic Effects and Blood Pool Kinetics of Polystyrene Microspheres Following I.V. Administration, Slack, I.D., Kanke, M., Simmons, G.H., and DeLuca, P.P., J. Pharm. Sci., 70(6), 660-64 June (1981).
- 69) Acute Toxicity of Latex Microspheres, Yokel, R., Simmons, G.H., Sabo, I., and DeLuca, P.P., Toxicology Letters, 9:165-170 (1981).

- 70) Compatibility of Amphotericin B with Certain Large-volume Parenterals, Jurgens, R.W., DeLuca, P.P., and Papadimitriou, P., Am. J. Hosp. Pharm., 38, 377-78 March (1981).
- 71) The Application of Proposed Procedures for Testing for Extractables in Plastic Containers, DeLuca, P.P., Papadimitriou, D. and DeLuca, P.P., J. Paren. Sci. & Tech., 36(1) 28, (1982).
- 72) Biodegradable Microspheres for Controlled Drug Delivery Via the Parenteral Route, DeLuca, P.P., Sato, T., Schroeder, H.G., and Kanke, M., APGI Proceedings 3rd International Conference on Pharmaceutical Technology, Vol IV, p. 152-161, June 1983, France.
- 73) Interaction of Microspheres with Blood Constituents and Effect on Immune Response, Kanke, M., Sniecinski, I., and DeLuca, P.P., APGI Proceedings 3rd International Conference on Pharmaceutical Technology, Vol IV, p. 162-169, June 1983, France.
- 74) Binding of Select Drugs to Cellulosic Ester Membranes During I.V. Administration and Continuous Ambulatory Peritoneal Dialysis, Kanke, M., Eubanks, I., and DeLuca, P.P., APGI Proceedings of 3rd International Conference on Pharmaceutical Technology Vol III, 308-317, June 1983, France.
- 75) High-Performance Liquid Chromatographic Methods for Antibiotics Admixed with Intravenous Infusates, Athanikar, N.K., Jurgens, R.W., Sturgeon, R.I., DeLuca, P.P. and Papadimitriou, D., J. Paren. Sci. & Tech., 37: (4) 125-28, (1983).
- 76) The Binding of Selected Drugs to a "Treated" Inline Filter, Kanke, M., and Eubanks, I.I., DeLuca, P.P., Am. J. Hosp. Pharm., Vol. 40 1323-1328, August (1983).
- 77) Interaction of Microspheres with Blood Constituents: I. Uptake of Polystyrene Spheres by Monocytes and Granulocytes and Effect on Immune Responsiveness of Lymphocytes, Kanke, M., Sniecinski, I.I., and DeLuca, P.P., J. Paren. Sci. & Technol., 37(6):210, (1983).
- 78) Biodegradable Microspheres for Injection and Inhalation, DeLuca, P.P., Kanke, M., and Sato, T., in Microspheres and Drug Therapy: Pharmaceutical, Immunological and Medical Aspects, p. 343-44 Elsevier, Amsterdam, 1984.
- 79) Distribution and Elimination of Coated Polymethyl[2-14C] Methacrylate Nanoparticles after IV Injection in Rats, Leu, D., Manthey, B., Kreuter, I., Speiser, P. and DeLuca, P.P., J. Pharm. Sci., 73:(10), 1433-37, October (1984).
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- 188) A Study of the Anti-resorptive Activity of Salmon Calcitonin Microspheres using Cultured Osteoclastic Cells, Dani, B.A., Raiche, A.T., Puleo, D.A., DeLuca, P.P., PharmSciTech (2002) in press.
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PATENTS

1. U.S. Patent 3,429,967; February 25, 1969, Stable Neomycin solution.
2. U.S. Patent 4,267,449; May 12, 1981, Testing the Integrity of Liquid Containing Hermetically Sealed Containers by the Use of Radioactive Markers. (with L.D. Butler).
3. U.S. Patent 4,741,872; May 3, 1988, European #0245820A2, Australian #600723, Canadian #1,309,657; November 3, 1992, Preparation of Biodegradable Microspheres as a Carrier for Macromolecules (with Frantisek Rypacek).
4. U.S. Patent 4,818,542; April 4, 1989, European #0391893, October 17, 1990; Canadian #1,308,356, October 6, 1992; European #0391893B1, August 25, 1993; Australian #647890, August 29, 1994; Porous Microspheres for Drug Delivery and Methods for Making Same.
5. U.S. Patent 5,160,745; November 3, 1992, Biodegradable Microspheres as a Carrier for Macromolecules (with Frantisek Rypacek).
6. Canadian Patent 2,046,830; February 26, 1999, Finnish Patent No. 104954; May 15, 2000, U.S. Patent 6,306,406; October 23, 2001, Mexican Patent 9,100,249; June 21, 2002, Drug Delivery System Involving Interaction Between Protein or Polypeptide and Hydrophobic Biodegradable Polymer.
7. Applied; April 15, 1999, Preparation and Characterization of Poly (D,L-Lactide-Co-Glycolide) Microspheres for Controlled Release of Poly (L-Lysine) Complexed Plasmid DNA (with Yilmaz Capan and Byung Ho Woo).
8. Preparation and Characterization of A Novel Composite Microspheres Based on Poly (D,L-lactide-co-glycolide) and Hydroxyethyl Starch Acrylic Acid Ester Hydrogel, submitted, May 2000.

ADDENDUM

A. *Administrative Experience*

1. Academia:

1.1 Principle administrative responsibilities of Associate Dean and Division Director:

- (a) Prepared fiscal and biennium budgets for the College and Divisions within the College.
- (b) Oversight of institutional grant requests.
- (c) Prepared the 5-year plan (alternate years).
- (d) Evaluated and recommended space allocations, renovations and utilization.
- (e) Modified and improved systems, procedures and services
- (f) As a Division Director, assessed the needs of the division and prepared budget developed good morale and good standards of performance among division personnel and evaluated division personnel on a regular basis and attempted to promote.
- (g) Served on special assignments from the Chancellor for the Medical Center.
- (h) Coordinated planning for clinical aspects of pharmacy in the Medical Center.
- (i) Coordinated planning and occupancy of new College of Pharmacy Building.
- (j) Served as an Interim Director of Center for Pharmaceutical Science and Technology.
- (k) Co chaired committee for Reorganization of Pharmaceutical Sciences Faculty.
- (l) Served as Interim Chair of Pharmaceutical Sciences Faculty.

1.2 Research Program:

- (a) Direct research staff of post-doctoral fellows, graduate students and research technicians.
- (b) Manage budget of over \$300,000 and 3-5 funded projects.

2. Industry:

At CIBA as a Senior Research Pharmacist was in charge of Stability Evaluation Programs. Also was liaison with the Animal Health Group. As manager of Special Projects was responsible for locating a plant site and establishing the manufacturing operation for Prefilled Disposable Syringe System. As plant manager had responsibility for a 100 people operation.

B. *Instructional Experience*

1. University of Kentucky:
 - (a) Developed three courses:
1972 - introduced a 4 credit course in Industrial Pharmaceutical Technology;
1973 - introduced a 3 credit course in Sterile Parenterals and Devices;
1974 -as a result of a VA sponsored grant, a 3 credit Pharmaceutical Technology Clerkship course was introduced (changed to 4 credits in 1977; in 1979, essential elements were introduced into core curriculum).
 - (b) Has had major responsibility and shared lectures for Pharmaceutics courses, had shared course responsibility in Pharmaceutical Analysis and Physical Pharmacy and has given lectures in Pharmacotherapeutics, Pharmacy and the Health Care System, and Drugs, Medicines and Society courses.
2. Off-Campus Teaching
 - (a) Frequent invited speaker at national and international professional and scientific meetings. In the past 30 years personally delivered over 200 seminars (Listing available on request)
 - (b) Developed and directed two intensive short courses; one in sterile products technology and the other in particulate matter monitoring which are presented yearly in New Jersey by the Center for Professional Advancement. (Also presented in Europe, Puerto Rico and to the FDA).

C. *Professional and Public Service*

1. University Committee Activities (C Current)
 - Chairman of an ad hoc University Task Group on University Goals
 - University Senate (3 terms)
 - General Studies Committee
 - Ad hoc committee on Tobacco and Health Research Institute Policy
 - Criteria for Promotion and Tenure
 - University Academic Area Advisory Committee for the Clinical Sciences (2 terms, was chairman for one year)
 - University Academic Area Advisory Committee for the Biological Sciences for 2 terms; Chairman, 1988-89; Chairman 2002-2003.
 - Tobacco & Health Institute Policy
 - Search Committee for Director of Tobacco and Health Research Institute
 - Chairman of Search Committee for Academic Ombudsman
 - University Self Study (Physical Resources)
 - University Major Research Equipment Committee
 - University Research Committee
 - Medical Center Space Survey
 - Medical Center Facilities Advisory Committee

- Health Care Delivery Planning Task Force
- Steering Committee for Medical Center Planning
- Academic Performance, College of Allied Health
- New College of Pharmacy Fund Raising Committee
- 25th Anniversary of Medical Center Planning Committee
- Center of Excellence Task Force for Pharmaceutical Science & Technology
- Self Study Research Task Group for the College of Medicine
- Task force on Equipment Maintenance
- Advanced Science and Technology Commercialization Center
- Senate Advisory Hearing Committee
- Senate Advisory Faculty Code Committee
- University Intellectual Properties Committee
- Biomedical Engineering Review
- Examining Committee for several non Pharmacy Candidates for the degree of Doctor of Philosophy
- University Senate Rules Committee
- University Self Learning Initiatives Committee

2. College Committee Activities

- Tripartite Committee
- Administrative Council
- Graduate Program
- Seminar Committee
- Ad Hoc Committee on Departmental Reorganization
- Building, Space and Services
- Appointment, Promotion and Tenure, Chairman
- Health and Drug Education
- Honors Day
- Manpower Study (Chairman)
- Self Study Task Group
- New Building Planning Committee (Chairman)
- Pharm.D. Council
- Curriculum
- Dedication of New Building Planning Committee
- SAKPHA Advisor (1980-81)
- Admissions
- Deans and Division Directors
- Pharm.D. Curriculum Task Force
- Chairperson, Search Committee for Medicinal Chemistry & Pharmaceutics Division Chair
- AAPS Student Chapter Advisor
- First Year Course Coordinator for New Curriculum
- Reorganization Task Group Co-Chair
- College of Pharmacy Outreach Committee

3. Public Service

- (a) Involvement on State Level: Served on an ad hoc study group on pharmacy, appointed by the Council on Public Higher Education, to assist in the development of a comprehensive health sciences education plan for the Commonwealth of Kentucky. Served on a Kentucky Department of Health, Education and Welfare Laetril Committee. Has been a delegate at the Kentucky Pharmacists Association House of Delegates Meetings.
- (b) Professional Involvement on a National Level: Served as President of the Academy of Pharmaceutical Sciences in 1979-80; Executive Committee member of the Academy for 6 years, 1974-77, 1979-81; an Academy fellow; served on and chaired numerous Academy committees. Charter Member of the American Association of Pharmaceutical Scientists. Member and Chairman (1987) of Board of Director of AAPS. Member of the AAPS Pharmaceutical Technologies Section Executive Committee.
- (c) American Society of Hospital Pharmacists Foundation: Served on Research Awards Committee, 1984 - 1986.
- (d) American Council on Pharmaceutical Education: Served as a member on accreditation teams.
- (e) Served on a national group commissioned by the Department of Education to recommend a mechanism to establish a National Commission on Excellence in Science and Math Education.
- (f) Delegate to the U.S.P. Has served on various committees and advisory panels of the U.S.P. Also served on a FDA-USP national coordinating committee to study the problems involved with large volume parenteral solutions.
- (g) National Cancer Institute: Member of Special Task Force to Review Program and Future Direction of the Pharmaceutical Resources Branch.
- (h) Editor-in-Chief for International Journal, *Pharmaceutical Development and Technology*, 1995 – 1999.
- (i) Member of Editorial or Scientific Advisory Board of *Pharmaceutical Technology*, *Journal of Pharmaceutical Sciences and Technology*, *STP Technology Pharm. Sciences and Microspheres*, *Microcapsules and Liposomes*.
- (j) Editor-in-chief for AAPS online journal PharmSciTech. 2000-
- (k) Served on NIH, NIDA & SBIR Review Groups. Currently serves on the FDA Pharmaceutical Advisory Committee

D. Research and Scholarship

Research has been directed toward the advancement of pharmaceutical technology in industry and the clinical setting. Has engaged in collaborative, interdisciplinary research associated with the preparation, administration and control of intravenously administered fluids. Current major interests are in developing and evaluating micro-particulate systems to target drugs and agents to specific organs and cells via parenteral and inhalation administration, formulation development of protein molecules and optimization of the freeze-drying process. Research activities have included: (a) assessing the clinical hazards of particulate contamination; (b) determining where particles localize in the body; (c) identifying residues isolated from various injectable preparations and establishing guidelines for identification; (d) evaluating potential solubilizing agents for poorly soluble drugs; (e) studying factors which influence the release of drugs from sustained action dosage forms; and (f) freeze-drying.

Research achievements were recognized on numerous occasions. In 1960 and '62 as the recipient of the Lunsford-Richardson Pharmacy Award and in 1965 as the recipient of a research award for the best paper contributing to the advancement of industrial pharmacy. Graduate students have received the Parenteral Drug Association Research Award four times for research reports of work on intravenous dosage forms and two students have received outstanding manuscript awards from the American Association of Pharmaceutical Scientists. Received the first annual Research Achievement Award "The C. Schaufus Parenteral Technology Award" sponsored by the Parenteral Drug Association, contributing to the literature over a 5 year period in advancing the area of parenteral technology. Co-recipient of the ASHP Research Achievement Award for the most significant contribution to the literature for research in the professional practice of hospital pharmacy during 1975. Recipient of the Parenteral Drug Association Foundation for the Pharmaceutical Sciences Stimulation of Research Awards for 1981 and '82. Co-recipient with his graduate student of a research award for the studying the effects of freezing and drying on Immunoglobulin Conformation in 1987. Received the first Research Achievement Award in Pharmaceutical Technology from the American Association of Pharmaceutical Scientists in 1988. Recipient of the William B. Sturgill Award for outstanding contribution to graduate education and research at the University of Kentucky in 1995. In 1998, was the recipient of the Outstanding Manuscript Award in *Pharmaceutical Development and Technology* during the period 1996-1997. In 2000, was the recipient of the first AAPS Outstanding Educator Award in Pharmaceutical Sciences Education. In 2001, he was honored by the University as a Sullivan Medallist. His students have received AAPS Graduate Student Awards for Outstanding Manuscripts in 1998, 1999, 2000, 2001 and 2002. He is the 2002 recipient of the Outstanding Manuscript Award for Pharmaceutical Technologies for papers published in *PharmSciTech* and *Pharmaceutical Development and Technology* during 2000 and 2001.

Since joining the University of Kentucky College of Pharmacy in 1970, published or has in press nearly 200 scientific and professional papers, authored 6 chapters in textbooks and received several patents. Also during this period has served on over 65 graduate and Pharm.D. student advisory committees, the chairperson for 27; directed 40 postdoctoral scholars and coordinated the efforts of 7 adjunct faculty. Served on NIDA and SBIR Review Committees since 1989. In 1994, he was named co-editor of *STP Pharma Sciences* for North America, in 1995 became the Editor-in-Chief of *Pharmaceutical Development and Technology* and 1999 the Editor-in-Chief of *PharmSciTech*..

Patrick P. DeLuca, Ph.D.
Professor of Pharmacy
University of Kentucky College of Pharmacy
Short Bio

Patrick P. DeLuca, Professor of Pharmacy, University of Kentucky College of Pharmacy, received his B.S. from Temple University, spent 1 1/2 years at Smith, Kline and French Labs as an Analytical Chemist, received his M.S. and his Ph.D. from Temple University.

In 1963, he joined the CIBA Pharmaceutical Company as a Senior Research Pharmacist, and in 1967 became the Plant Manager for CIBA- Somerville Operations. In 1969, the CIBA-Somerville Operations became a joint venture between CIBA and Coming Glass and shortly thereafter, Dr. DeLuca became Director of Development and Control until July 1970 when he joined the University of Kentucky.

Dr. DeLuca's major teaching and research responsibilities and interests are in the area of Pharmaceutical Technology where he has served as Director of the Division of Drug Information, Evaluation and Technology. He has published or has in press over 190 research articles on lyophilization, photochemistry, stability testing, complexation, I.V. therapy, microsphere drug delivery, and particulate matter monitoring and has several professional publications on pharmacy education. He is the author of chapters on "Sterile Products", "Kinetic Principles and Stability Testing", "Parenteral Drug Delivery Systems", "Formulation of Small Volume Parenterals", and "Particulate Matter".

Dr. DeLuca has served as the President of the American Pharmaceutical Association's Academy of Pharmaceutical Sciences, and is a fellow of the Academy. He is a founding member of the American Association of Pharmaceutical Scientists and a member of the Board of Directors. He has served as a member of the F.D.A.-U.S.P. sponsored National Coordinating Committee to study the problems involved with large volume parenteral solutions. He is a member of the Parenteral Drug Association, the New York Academy of Sciences, the American Association of Colleges of Pharmacy and the American Society of Hospital Pharmacists. Dr. DeLuca was Editor-in-Chief of the International Journal, *Pharmaceutical Development and Technology* 1995-1999 and is now the Editor-in-Chief of the AAPS online journal *PharmSciTech*. He serves on the editorial board of several scientific journals and is a consultant to the F.D.A and the pharmaceutical industry.